

## ABSTRACT

Highly efficient lossless decoding is realized under the condition that codes transmitted as a base part are compatible with the H.264 standard. An orthogonal transformation section (12) performs orthogonal transformation of residual signals ( $R_{orig}$ ), acquires transform coefficients ( $X_{orig}$ ), and a quantization section (13) quantizes the transform coefficients. An existential space determination section (14) obtains information on upper limits and lower limits of the respective coefficients (an existential space of transform coefficients) from quantization information. A bundled coefficients coding section (16) decides whether respective grid points in the existential space of the transform coefficients have validity as results of orthogonal transformation of the residual signals, and enumerates valid grid points, assigns serial numbers (*index*) in the order of enumeration, and encodes using a serial number coding section (166) the serial numbers of grid points which match the transform coefficients ( $X_{orig}$ ) of the residual signal.